Ken, Bill, Mary, IFRO
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BASIC AMERICAN FOODS

T2-030515

APPLICATION FOR TIER II AIR OPERATING PERMIT – REVISION #1

REXBURG FACILITY OF BASIC AMERICAN FOODS

(A DIVISION OF BASIC AMERICAN, INC.)

May 2004

Coal Creek Environmental Associates, LLC

4621 118th Ave SE
Bellevue, WA 98006

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Department of Environmental Quality
State Air Program

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF TABLES

LIST OF FIGURES

1. INTRODUCTION

This document is a Revised Application for issuance of a Tier II Operating Permit for the Rexburg Facility of Basic American Foods (BAF), a Division of Basic American, Inc., (AIRS Facility No. 065-00008). The original Application was submitted in May 2003, in accordance with Conditions 9.2 and 9.3 of Tier I Operating Permit No. 065-00008, issued to Basic American Foods on December 11, 2002.

This application includes required information and additional specific information, including estimates of ambient air concentrations, required by IDAPA 58.01.01.402, for issuance of a Tier II permit. The estimates of ambient air impact analysis are based on a Full Impact Analysis of emissions prepared in accordance with *State of Idaho Air Quality Modeling Guideline* (AQ-011 (rev. 1 12/31/02)). The Full Impact Analysis is contained in a separate submittal.

This application also includes applicable information and addresses applicable requirements, as required by IDAPA 58.01.01.200 through 58.01.01.228, for the construction or modification of sources for which BAF does not have required Permits to Construct.

Appendix A contains Completeness Determination forms for the application. Section 2 and Appendix B of this Application contain information requested in IDEQ's Air Quality Operating Permit Application Forms. Additional descriptions of facility operations and emissions are included in subsequent sections of the application.

This Revised Application updates various aspects of the original application, including:

- Removing requests for confidential treatment of various portion of the application
- Correcting a transposition of operating rates between two process dryers
- Fixing miscellaneous typographic and grammatical errors in the original.

Because of the number of pages affected by these changes, it is easier to submit a replacement application than to issue errata sheets. Accordingly, BAF requests that the original application be replaced in its entirety by this application.

2. GENERAL FACILITY INFORMATION

Company and Division Name	Rexburg Facility of Basic American Foods, a Division of Basic American Inc.
Street Address	40 East 7th North Rexburg, ID 83274
Exact Plant Location	40 East 7th North Rexburg, ID 83274
Contact Person	Ron Gibb Facility Environmental Manager (208) 359-6848
General Nature of Business/Product	Dehydrated food products and animal feed
Number of full-time employees and property area	180 employees 280 acres
Reason for Application	3 – Tier II Permit to Operate
Distance to Nearest State Border	40 miles
Primary and Secondary SIC	2034
Plant Location County	Madison
Elevation	4863' MSL
UTM Zone UTM X (Easting) UTM Y (Northing)	12 437 4854
Name and Location of Other Facilities	Basic American Foods, Shelley, ID Basic American Foods, Blackfoot, ID
Responsible Official	Kevin Flaherty, Facility Manager

Based on information and belief formed after reasonable inquiry, I certify the statements and information in this document are accurate and complete.

K. E. Flaherty
Kevin Flaherty

5/5/04
Date

3. SOURCE INFORMATION

The Rexburg Facility is located in unincorporated land immediately north of the Rexburg City Limits. The Rexburg Facility is bounded on the south by the South Fork of the Teton River, and on the east by the Union Pacific Railroad tracks. Access to the Rexburg Facility is from North Salem Road at East 7th North.

The Rexburg Facility is a food drying and dehydrating plant. A portion of the Rexburg Facility is leased to Idaho Fresh Cooperative as a fresh potato packing operation. This portion of the Rexburg Facility is operated by Rexburg Fresh, a district member of the Idaho Fresh Cooperative.

Figure 3-1 shows the Rexburg Facility location on a USGS map. Figure 3-2 is a site map of the Rexburg Facility. Figure 3-3 shows the locations of point sources (stacks) at the Rexburg Facility.

FACILITY ACTIVITIES

The Rexburg Facility produces a variety of dehydrated food products for both internal use and for customers. BAF uses a variety of dehydration technologies to produce products to meet exacting customer specifications.

PRODUCTS

Rexburg Facility products are described below.

- Potato granules.

  Potato granules are dehydrated individual potato cells prepared from raw potatoes by cooking, followed by gentle drying. Granules typically range from 50 to 120 microns in size. Granules produced at the Rexburg Facility are either used at the Rexburg Facility, are packaged for sale, or are shipped to other BAF facilities for use in products produced at those plants.

- Formulated dehydrated food products.

  Formulated products are prepared from various combinations of dried ingredients, fresh and fresh-cooked ingredients, and food additives. BAF dries these formulations to create final products.

- Dehydrated whole and piece food products

  BAF prepares dehydrated whole and piece food products by dehydrating cooked and/or blanched foods. These foods can be either whole vegetables or vegetable pieces. Piece products range up to several inches in diameter.

- Animal feed.

  Animal feed, consisting of food fractions and off-specification materials that are not suitable for use in other products, is produced as a co-product of other Rexburg Facility processes. BAF uses various materials classification processes to segregate, collect, and transport animal feed. Animal feed is transferred directly to load out operations after collection without further processing.

RAW MATERIALS

Rexburg Facility raw materials include uncooked food products, dehydrated food products produced at this or other locations and various additives and flavorings used in Rexburg Facility products. BAF receives fresh potatoes both directly from producers and from Rexburg Fresh.

Fresh potatoes can be either processed directly or stored in cellars on-site, pending packing or processing.

PRODUCTION PROCESSES

BAF uses a variety of drying and dehydration processes. All dried products are dried by contact with heated air. Drying air is heated either by direct-firing with natural gas or indirectly using steam heat exchangers. Air suspension unit processes are also used to classify materials and to remove unsuitable fractions from the production stream.

MATERIALS TRANSPORT ACTIVITIES

Materials transport occurs both internally within a processing activity and externally to transfer materials between processes, to place them into or take them out of bulk storage, or to transport them to packaging and load out activities. BAF uses pneumatic bulk transfer systems to transport granules and formulated products. BAF also uses belt and bucket conveyors at various locations in its operations to transport raw materials, products in processing, and finished products. All bucket and belt conveyors are entirely contained within enclosed buildings. BAF also uses wet flumes to transport raw potatoes. Fork lifts are used to transfer tote containers within the Rexburg Facility.

Materials recovery units (primarily cyclones) are integral to the operation of all unit processes in which granules or formulated products are suspended in air.

SHIPPING AND RECEIVING

Raw materials are received on site by truck. All shipments are by truck or rail. Trucks are also used to move potatoes to and from the on-site cellars.

FUEL USAGE

Wood is the primary fuel used to produce steam, with supplemental steam generation using natural gas. Coal can also be used for steam generation. Natural gas is the sole fuel used for direct heated processes. Facility heating is by natural gas.

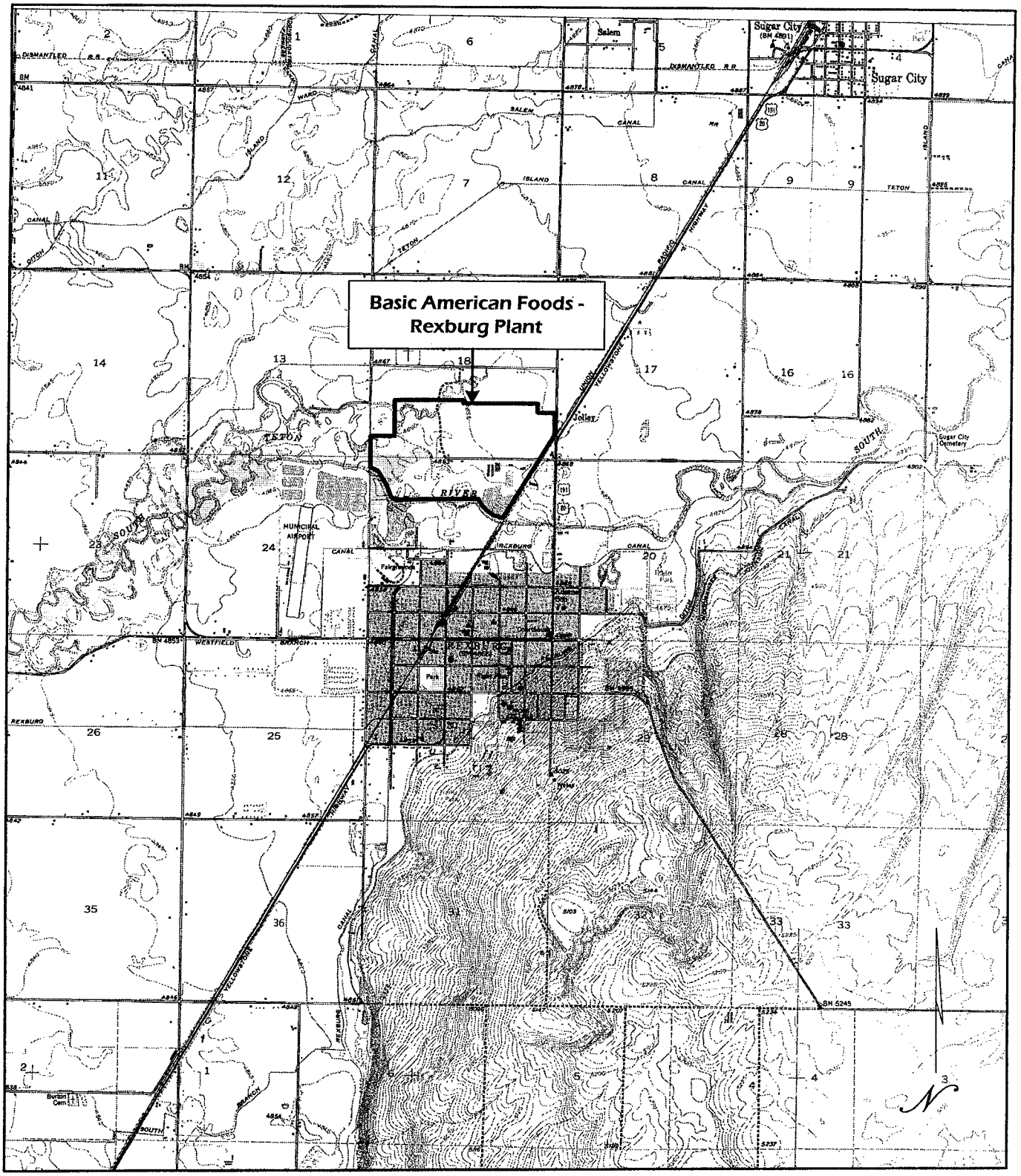


FIGURE 3-1
SITE MAP

TIER II AIR OPERATING PERMIT APPLICATION
BASIC AMERICAN FOODS - REXBURG, ID FACILITY

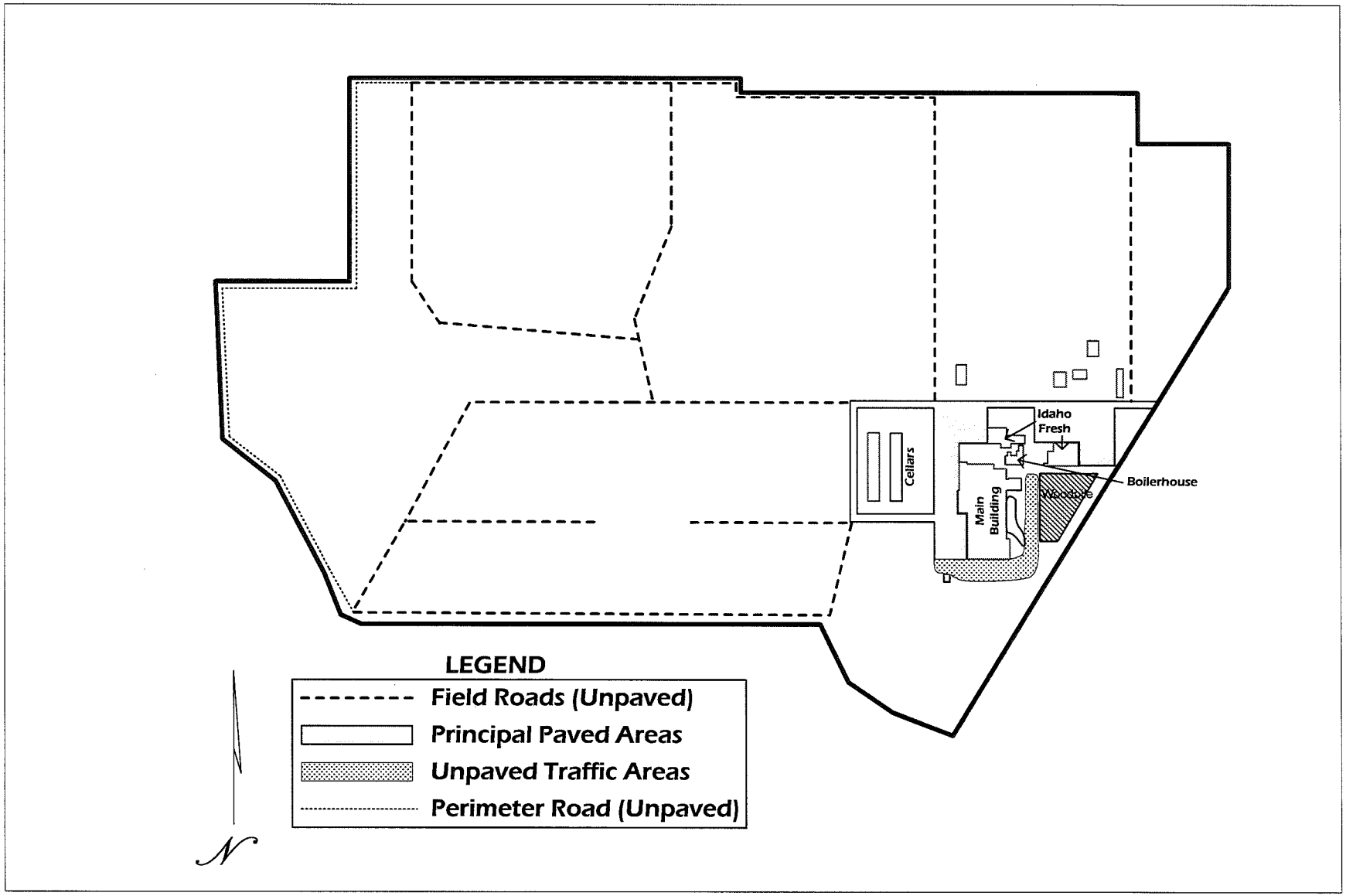


FIGURE 3-2
REXBURG FACILITY SITE PLAN

TIER II AIR OPERATING PERMIT APPLICATION - BASIC AMERICAN FOODS - REXBURG, ID

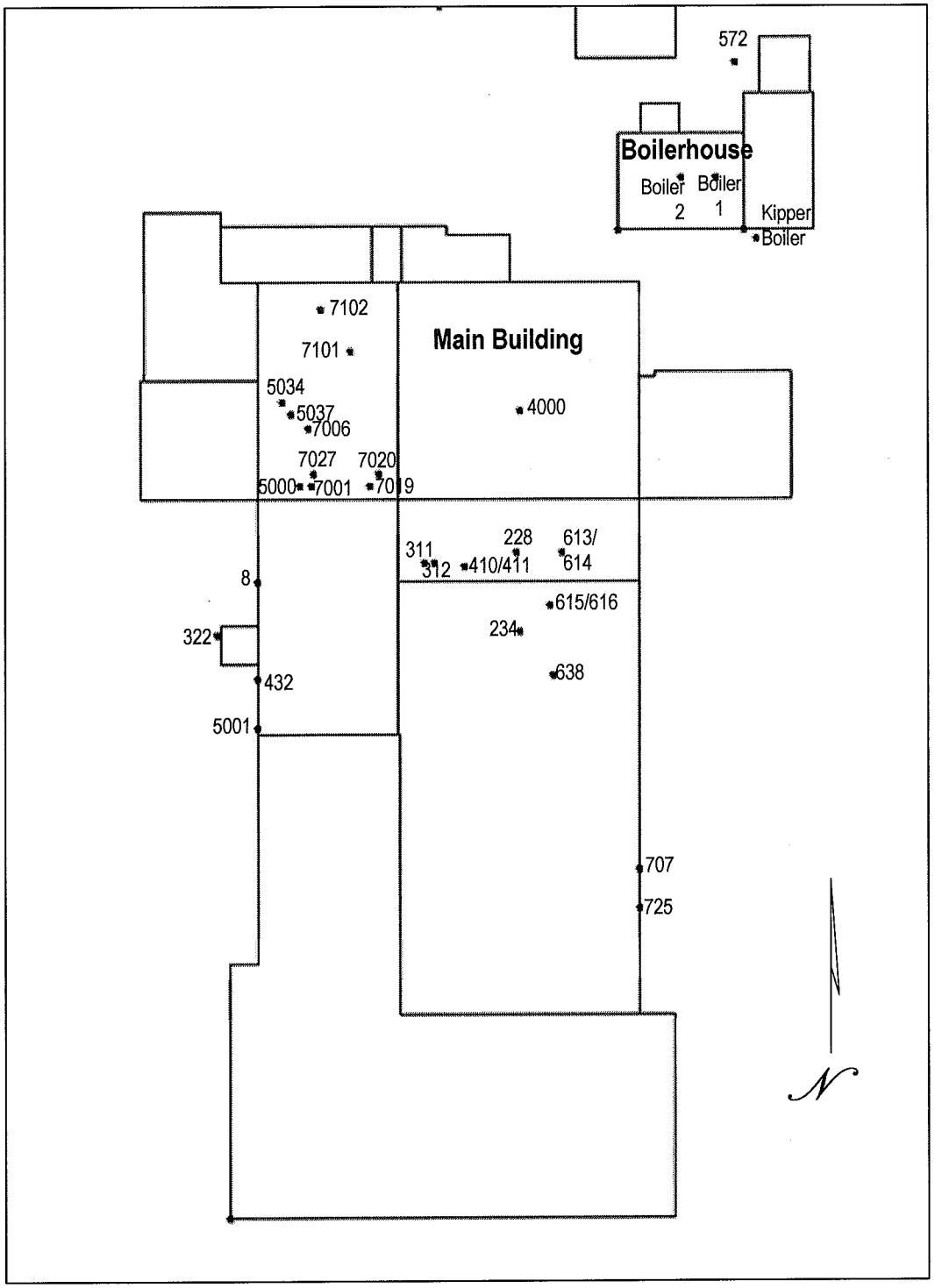


FIGURE 3-3
STACK LOCATIONS

4. PROCESS INFORMATION

Rexburg Facility activities are organized into the following processes, as identified in the Tier I Operating Permit:

Process Identification	Production Process
Plant	Plantwide Operating And Support Activities
Boilers	Process Steam Generation
Process A	Dehydrated Potato Products
Process B	Dehydrated Food Products, Materials Transport, and Packaging

Figure 4-1 is a plantwide process schematic.

This section of the Tier II permit application describes each of these processes in more detail. As mentioned previously, the Emissions Unit Information Tables in Appendix B contain information requested in the IDEQ Air Quality Operating Permit Application Forms.

The process description also addresses process history and any identified changes in operations that are potentially subject to PTC requirements. Section 7 reviews the applicability of PTC rules to each of these changes.

Process histories were developed through interviews with long-time Rexburg Facility employees and by review of historic capital projects for the Rexburg Facility. Recollections of individual employees were cross-checked with dated drawings and with memories of other employees.

PLANT

PROCESS DESCRIPTION AND OPERATIONS

The "Plant" Process includes site activities that are plant-wide in nature or that are not associated with a specific production process at the Rexburg Facility. The Plant Process includes overall facility management, wood fuel receiving and storage, utility services, shipping and receiving, operation of potato storage cellars, space heating and cooling,

analytical laboratories, spray field operations, and maintenance and grounds-keeping activities.

EMISSIONS UNIT DATA

Emissions sources associated with the Plant Process include both point and fugitive sources.

Point Sources

The only point sources in the Plant Process are laboratory fume hoods. These fume hoods are exempt from permitting in accordance with IDAPA 58.01.01.222.

Fugitive Emission Sources

Fugitive emissions sources associated with the Plant Process include dust and volatile organic compound (VOC) emissions from the wood fuel pile, combustion emissions from gas-fired space heaters and dust emissions from vehicle traffic on-site. There are 18 individual space heaters at the Rexburg Facility, in sizes ranging from less than 100,000 Btu/hr to 8.8 MMBtu/hr with a total combustion capacity of 30.8 MMBtu/hr. For estimating potential annual emissions, the space heaters are assumed to operate at 50 percent of rated capacity. Emissions unit information for space heaters in aggregate is presented in Appendixes B and C.

Because the Rexburg Facility operates under negative atmospheric pressure, fugitive emissions from doors, windows, and other openings are insignificant. In addition, all doors, windows, and other openings are kept closed for sanitation purposes. Building air is vented through roof ventilators and, to the extent building air is used for process air, through process stacks.

Emissions from all space heaters are included in the emission inventory. For air quality modeling purposes, all heater emissions are assumed to occur from a downward opening virtual stack located at roof height near the center of the main Rexburg Facility processing area.

Figure 4-2 shows the locations of Rexburg Facility road segments that are frequently traveled by trucks and considered potential sources of fugitive dust emissions. The Emissions Unit Data Tables in Appendix B provide additional information on these road segments and on estimated emissions from these roads. The perimeter road near the western fence is traveled once per day with a pickup truck as part of normal Rexburg Facility perimeter observations. Given this low usage, the western perimeter road was not considered a source of emissions.

RECORDKEEPING REQUIRED

As indicated in the Air Emissions Inventory in Section 5, the Rexburg Facility's current potential emissions of carbon monoxide exceed 250 tons per year, the threshold at which modifications might be subject to Prevention of Significant Deterioration (PSD) permitting rules. Condition 9.2 of the Rexburg Facility Tier I permit notes that as of the issuance of the

Tier I permit, the Rexburg Facility has not triggered PSD permitting requirements, and also requires that this Tier II operating permit include proposed enforceable conditions to limit potential carbon monoxide emissions to levels below the 250 ton per year PSD threshold. BAF's proposed conditions are presented in Section 9 of this application, and include limits on fuel consumption in space heaters. Implementing these proposed limits would require that BAF maintain records of total gas combustion in Rexburg Facility process burners and space heaters.

PROCESS CHANGES POTENTIALLY REQUIRING A PERMIT TO CONSTRUCT

Some of the space heaters have been installed or replaced since 1972, and hence are potentially subject to rules requiring Permit to Construct (PTC). As discussed in Section 7, emissions units whose sole emissions are from natural gas combustion less than 3.43 MMBtu/hr will directly qualify for a Category I exemption from Permit to Construct requirements because maximum potential emissions will meet both the "Below Regulatory Concern" significant increase threshold (IDAPA 58.01.01.221.01) and the emission rate based thresholds for the related Toxic Air Pollutant (TAP) exemptions of IDAPA 58.01.01.223.01 and IDAPA 58.01.01.223.02. Space heaters with capacities between 3.43 and 8.8 MMBtu/hr will qualify for a Category I exemption if modeling results show that ambient TAP impacts are less than associated TAP Acceptable Ambient Concentrations.

Because space heaters not exceeding 3.43 MMBtu/hr capacity qualify for a PTC exemption without further consideration, they are not listed here. The following space heating units installed after 1972 have burner capacities greater than 3.43 MMBtu/hr and are considered further in the Section 7 discussions of PTC applicability:

Heater Identification	Capacity, MMBtu/hr	Date Installed or Modified
REYCO – Shop roof	8.8	1997
REYCO – Proctor Roof	8.8	1997

BOILERS

PROCESS DESCRIPTION AND OPERATIONS

The Kipper Boiler and Boilers 1 and 2 provide process steam for the Rexburg Facility. The Kipper Boiler is fired with wood and is also permitted to burn up to 50% coal by heat content. Natural gas is the sole fuel for Boilers 1 and 2.

To control particulate emissions, the Kipper boiler uses multiclones (Zurn type MTSA-60-9 CYT-STD-XT multiclone with 112 tubes) with fly ash reinjection and a ventri-rod wet scrubber (Riley Model A-33-34,000). Technical data and specifications for the controls were provided with the BAF's original application for Permit to Construct for the Kipper boiler.

The Kipper Boiler is operated pursuant to a PTC issued by the Idaho Department of Health and Welfare on July 30, 1980. The Kipper Boiler is permitted to operate at 60,000 lbs of steam per hour, which is the boiler's rated steam capacity.

BAF's 1995 Tier I Operating Permit Application for the Rexburg Facility indicated that the Kipper Boiler was limited to 8568 hours per year of operation. This limitation was also included in the Tier I Air Operating Permit issued to the Rexburg Facility in December 2002. The PTC issued for the Kipper boiler did not contain any such limitation on the hours of operation, nor was any limitation on operating hours included in the application for the PTC. Accordingly, this limit on hours of boiler operation appears to have been erroneously included in the Tier I Permit Application and the subsequently issued Tier I Permit. BAF requests that the Tier II permit correct this oversight by removing any limitations on hours of operation of the Kipper Boiler.

In 1997 BAF completed a partial retubing of the Kipper boiler. The cost of this project, $77,000, is less than 20% of the estimated installed cost of a new boiler.

In 2001, BAF installed an economizer on the Kipper Boiler. Installation of the economizer did not increase boiler steam production; rather it allowed the same amount of steam to be generated using less fuel. Accordingly this project did not increase boiler emissions.

Boilers 1 and 2 were installed about 1965. Boilers 1 and 2 can operate up to 8760 hours per year. There are no alternate operating scenarios.

EMISSIONS UNIT DATA

Each boiler is a point source of emissions. Information on each boiler is summarized in the Emissions Unit Data Tables in Appendix B. The boilers are potential sources of carbon monoxide, nitrogen oxides, particulates, sulfur dioxide, volatile organics and certain HAPs and TAPs associated with fuel combustion.

RECORDKEEPING REQUIRED

Recordkeeping required is summarized in the Tier I Permit. Required recordkeeping includes:

- Hours of operation of the Kipper Boiler monthly and annually. (Permit Conditions 3.2 and 3.5)
- Results of quarterly visible emissions observations from all boilers (Permit Conditions 2.7, 2.8, 3.3, and 4.3
- Sulfur content of coal combusted in the Kipper boiler (Permit Condition 3.4).

The Kipper Boiler is also subject to the Compliance Assurance Monitoring rules in 40 CFR 64.3. During the life of the current Tier I Permit, BAF is required to prepare a monitoring and recordkeeping program for the particulate controls on the Kipper Boiler.

As indicated in the Air Emissions Inventory in Section 5, the Rexburg Facility's current potential emissions of carbon monoxide exceed 250 tons per year, the threshold at which modifications might be subject to Prevention of Significant Deterioration (PSD) permitting rules. Condition 9.2 of the Rexburg Facility Tier I permit notes that as of the issuance of the Tier I permit, the Rexburg Facility has not triggered PSD permitting requirements, and also requires that this Tier II operating permit include proposed enforceable conditions to limit potential carbon monoxide emissions to levels below the 250 ton per year PSD threshold. BAF's proposed conditions are presented in Section 9 of this application, and include limits on steam production in boilers. Implementing these proposed limits would require that BAF maintain records of wood and coal combustion in the Kipper boiler, and total gas combustion in Boilers 1 and 2.

PROCESS CHANGES POTENTIALLY REQUIRING A PERMIT TO CONSTRUCT

Changes in boiler facilities for which Permits to Construct were not obtained are the 1997 partial retubing of the Kipper Boiler and the 2002 economizer installation on the Kipper boiler.

The retubing replaced existing components with identical or functionally equivalent components, and did not change the basic design parameters of the process unit. The fixed capital cost of the replaced components plus the costs of repair and maintenance activities did not exceed 20 percent of the replacement value of the entire process unit. The replacement did not cause the unit to exceed any emissions limits. Accordingly, this project can be classed as routine maintenance and repair, for which a permit to construct is not required.

The 2001 economizer project did not change boiler combustion conditions, nor did it increase steam generation capacity; it allows the same amount of steam to be generated using less fuel. Thus, this project did not increase the amount of any regulated air pollutant emitted, nor did it result in the emission of an air pollutant not previously emitted. Accordingly, this project is not a modification for which a Permit to Construct is required.

PROCESS A

PROCESS DESCRIPTION AND OPERATIONS

Process A produces dehydrated potato products. Raw material input to the process is cooked potatoes and food additives, including sulfites. Products are produced via a series of cooling, drying, and materials separation processes. The maximum hourly feed rate is 30,600 pounds per hour, average hourly production on the maximum day, with a maximum production rate of 5,100 pounds per hour, average hourly production on the maximum day.

Process A can operate up to 8,760 hours per year. Maximum annual production is 45 million pounds. There are no alternate operating scenarios.

Drying heat is provided by natural gas combustion and by steam.

Emissions from Process A include both process emissions and products of combustion from those sources that combust natural gas as part of the process. Process emissions include:

- PM and PM-10, associated with entrainment and condensation of particulates in exhaust air streams; and
- Sulfur dioxide, associated with conversion of sulfites to sulfur dioxide.

Emissions that are products of natural gas combustion include CO, NOx, SO_2, PM, PM-10, VOC, Pb, and certain HAPs and TAPs.

EMISSIONS UNIT DATA

Emissions units included in Process A include process vents from dryers, coolers, and materials classification/separation units. Information on each stack in Process A is summarized in the Emissions Unit Data Tables in Appendix B.

RECORDKEEPING REQUIREMENTS

Estimating process emissions requires records on maximum hourly and total annual process output. Because records are maintained by operating shift and are reported as daily totals, maximum hourly emissions will be based on average hourly emissions during the operating day of highest production, where a day is a plant operating day defined by the start and end of a 24-hour work period, not a calendar day.

As indicated in the Air Emissions Inventory in Section 5, the Rexburg Facility's current potential emissions of carbon monoxide exceed 250 tons per year, the threshold at which modifications might be subject to Prevention of Significant Deterioration (PSD) permitting rules. Condition 9.2 of the Rexburg Facility Tier I permit notes that as of the issuance of the Tier I permit, the Rexburg Facility has not triggered PSD permitting requirements, and also requires that this Tier II operating permit include proposed enforceable conditions to limit potential carbon monoxide emissions to levels below the 250 ton per year PSD threshold. BAF's proposed conditions are presented in Section 9 of this application, and include limits on fuel consumption in process burners. Implementing these proposed limits would require that BAF maintain records of total gas combustion in process burners and space heaters.

PROCESS CHANGES POTENTIALLY REQUIRING A PERMIT TO CONSTRUCT

This process was originally installed in 1965, prior to the earliest PTC rules. The following changes to air emissions units have been made since 1972.

- *Installation of process cooler and stack 7020 (1989).* Stack 7020 serves a process cooler that was installed in 1989. This was a new installation.

- *Replacement of dryer associated with stack 7019 (1994).* Stack 7019 serves a dryer that was originally installed in 1965. In 1994 the dryer was replaced after fire damaged the original dryer.

PROCESS B

PROCESS DESCRIPTION AND OPERATIONS

Process B produces dehydrated food products. It also includes materials transport and packaging processes. Raw material inputs to Process B include cooked foods, previously dehydrated foods, and food additives, including sulfites.

Products are produced via a series of cooling, drying, and materials separation processes. The aggregate maximum hourly feed rate for dehydration activities is 70,000 pounds per hour, average hourly input on the maximum day, with an aggregate maximum production rate of 25,300 pounds per hour, average hourly production on the maximum day. The aggregate maximum annual production from dehydration activities is 221,600,000 pounds.

The packaging and materials transport activities can operate at an aggregated rate of up to 30,400 pounds per hour, with aggregated maximum material handling of 266,000,000 pounds per year. Process B can operate up to 8,760 hours per year.

Drying heat is provided by both natural gas combustion and steam produced by the boilers.

Emissions from Process B include both process emissions and products of combustion from those sources that combust natural gas as part of the process. Process emissions include:

- PM and PM-10, associated with entrainment and condensation of particulates in exhaust air streams; and

- Sulfur dioxide, associated with conversion of sulfites to sulfur dioxide.

Emissions that are products of natural gas combustion include CO, NOx, SO_2, PM, PM-10, VOC, Pb, and certain HAPs and TAPs.

EMISSIONS UNIT DATA

Emissions units included in Process B include process vents from dryers, coolers, and materials classification/separation units. Information on each stack in Process B is summarized in the Emissions Unit Data Tables in Appendix B.

RECORDKEEPING REQUIREMENTS

Estimating process emissions requires records on maximum hourly and total annual process output. Because production records are maintained on the basis of an operating day, maximum hourly emissions will be based on the average hourly emissions on the operating day of highest production, where a day is a plant operating day as established by the start and end of a 24-hour work period. This will ordinarily not be a calendar day.

As indicated in the Air Emissions Inventory in Section 5, the Rexburg Facility's current potential emissions of carbon monoxide exceed 250 tons per year, the threshold at which modifications might be subject to Prevention of Significant Deterioration (PSD) permitting rules. Condition 9.2 of the Rexburg Facility Tier I permit notes that as of the issuance of the Tier I permit, the Rexburg Facility has not triggered PSD permitting requirements, and also requires that this Tier II operating permit include proposed enforceable conditions to limit potential carbon monoxide emissions to levels below the 250 ton per year PSD threshold. BAF's proposed conditions are presented in Section 9 of this application, and include limits on fuel consumption in process burners. Implementing these proposed limits would require that BAF maintain records of total gas combustion in process burners and space heaters.

PROCESS CHANGES POTENTIALLY REQUIRING A PERMIT TO CONSTRUCT

This process was originally installed in 1965, prior to the earliest PTC rules. The following process changes have been made since 1972.

- *Installation of dryer and stacks 613/614, 615/616, and 638 (approximately 1976).* Stacks 613/614, 615/616, and 638 serve a dryer that was installed in approximately 1976. (BAF employees were not certain of the exact date, but were able to place installation sometime between 1973 and 1979.) This was a new installation.

- *Installation of materials transport system served by stack 432 (1983).* A materials transport activity served by stack 432 was installed in 1983 as a new installation.

- *Installation of dryers and stacks 5034 and 5037 (1993).* Stacks 5034 and 5037 serve a dryer and cooler that were installed in 1993. BAF applied for a Permit to Construct for these stacks as part of its 1995 *Application for Tier I Operating Permit* for the Rexburg Facility.

- *Installation of materials transport system served by stack 5000 (1993).* A materials transport activity served by stack 5000 was installed in 1993 as a new installation.

- *Installation of dryer and stack 4000 (1997).* Stack 4000 serves a dryer that was installed in 1997. This was a new installation.

- *Replacement of dryer and installation of stacks 228 and 234 (1999).* Stacks 228 and 234 serve a dryer that was installed in 1999, replacing an existing dryer. This replacement eliminated stacks 309 and 369/377 that were identified in BAF's 1995 *Application for Tier I Operating Permit* for the Rexburg Facility.

- *Installation of materials transport system served by stack 572 (1997).* A materials transport activity served by stack 572 was installed in 1997 as a new installation.

Applicability of PTC requirements to the process changes listed above is addressed in Section 7 of this application.

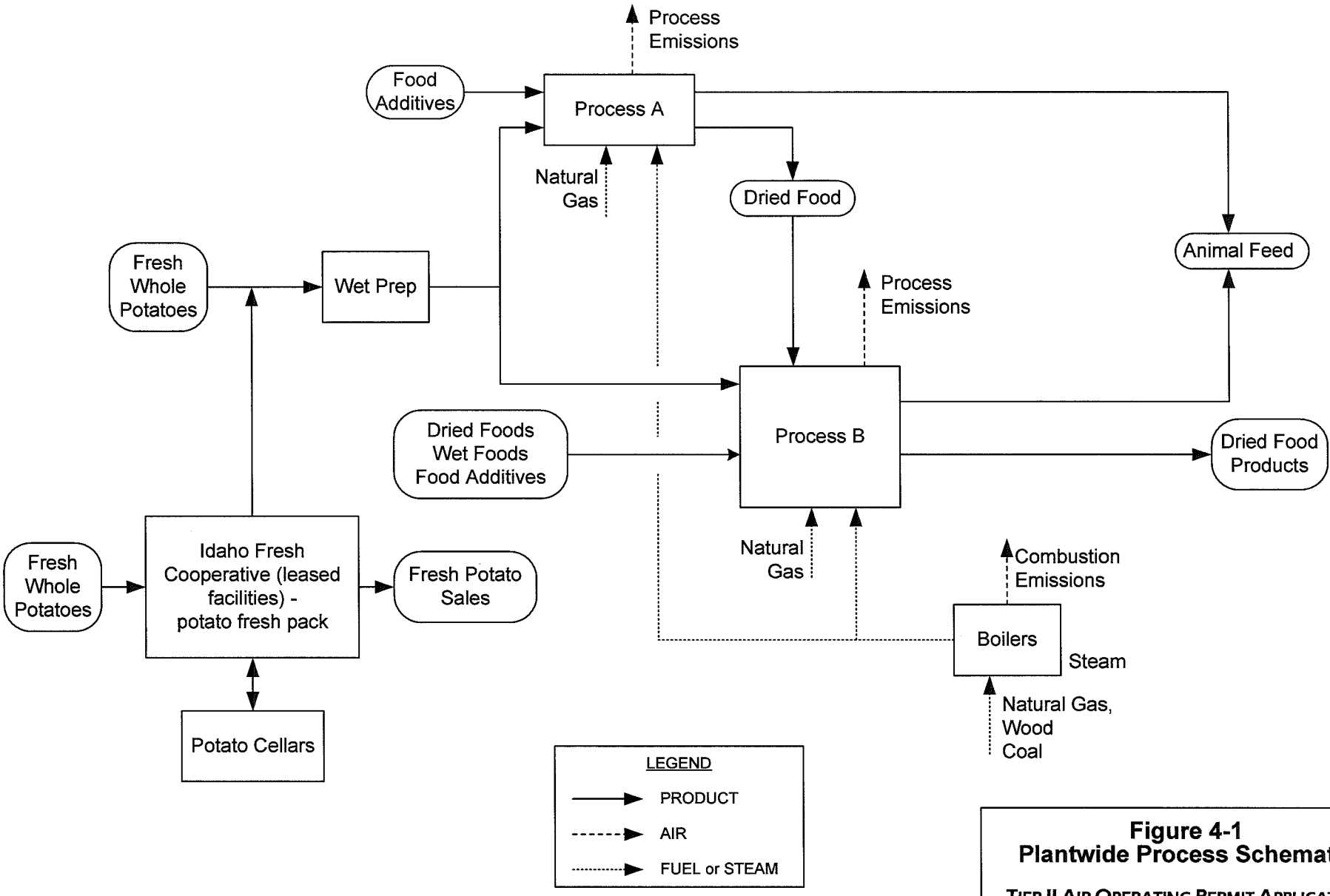
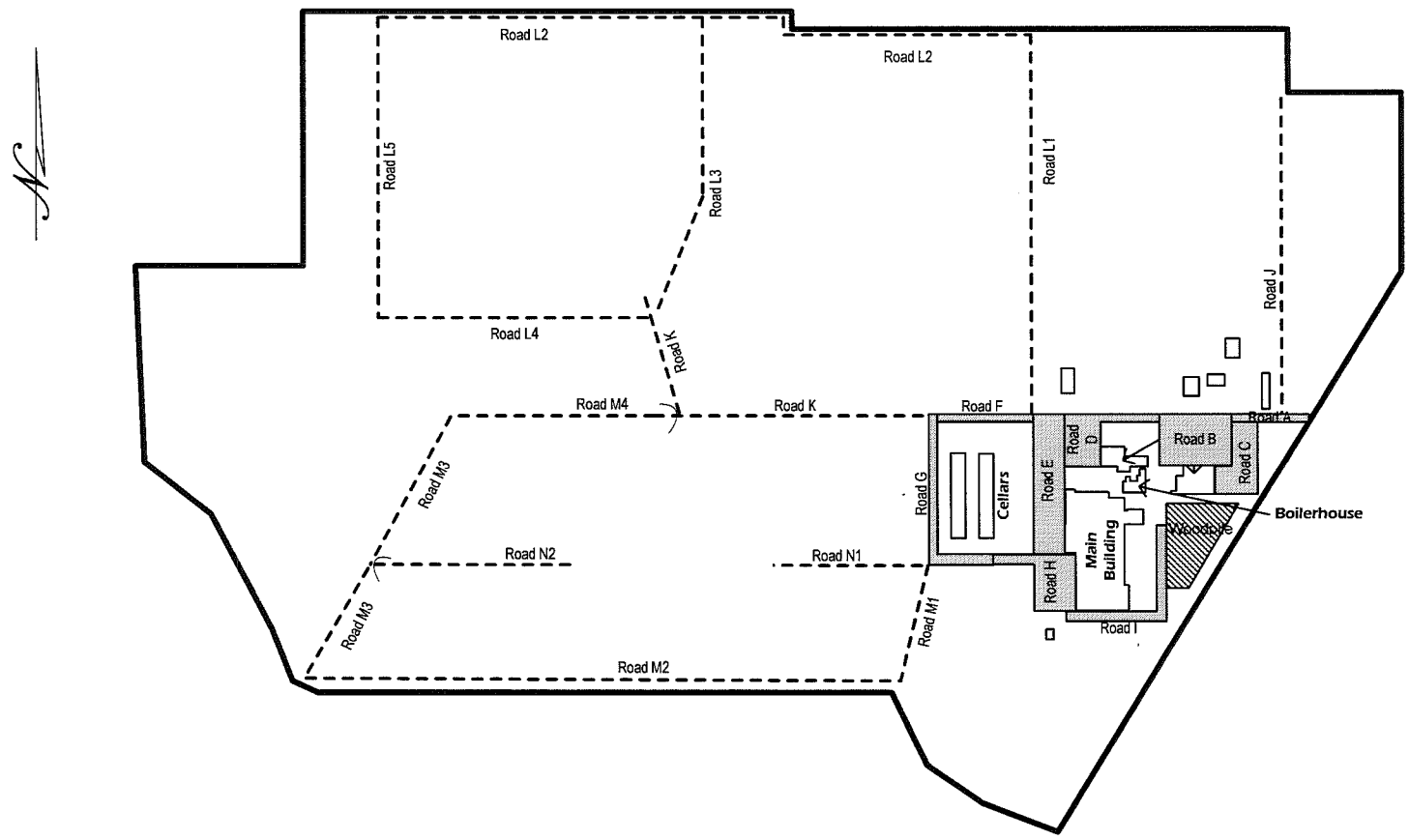


Figure 4-1
Plantwide Process Schematic

TIER II AIR OPERATING PERMIT APPLICATION
BASIC AMERICAN FOODS - REXBURG, ID

Coal Creek Environmental Associates, LLC
Project 030701.53 **May 2004**



Note: Road locations and names correspond with the layout used in dispersion modeling. Locations of some interior field roads are simplified.

FIGURE 4-2
PRINCIPAL FACILITY ROADS

TIER II AIR OPERATING PERMIT APPLICATION - BASIC AMERICAN FOODS - REXBURG, ID

5. AIR EMISSIONS INVENTORY

Air emissions from the Rexburg Facility are associated with the following activities:

- Products of combustion associated with process steam generation in boilers;
- Evaporation losses of volatile organic compounds from wood fuel stored on site;
- Products of combustion associated with firing natural gas to supply heated air to dryers;
- Food and food product particulates generated by drying operations;
- Food product particulates incompletely recovered from air suspension materials transport processes.
- Conversion of sulfite to sulfur dioxide in drying processes.
- Fugitive dust generated by vehicle traffic.

Tables 5-1 is a plantwide emission inventory. This inventory is based on firing the Kipper Boiler either entirely with wood, or with a wood:coal mixture (with coal limited to no more than 50 percent of the boiler heat input.) To prepare this inventory, emission factors were determined for each pollutant for both wood firing and wood:coal firing. In each case, the emission factor used is the factor yielding the higher emission estimate. Thus, the Table 5-1 inventory is the true potential to emit. The Table 5-1 emission estimate is also presented in more detail in the emission inventory tables in Appendix C.

Table 5-2 is an emissions inventory for fugitive emissions.

Hazardous air pollutant (HAP) and Toxic Air Pollutant (TAP) emissions are associated only with fuel combustion. Table 5-1 includes estimated maximum hourly and annual emissions of four TAPs: cadmium, nitrous oxide, beryllium, and mercury. These TAPS were included in the emission inventory because they are used to help evaluate whether changes in facilities meet criteria to be exempted from Permit to Construct requirements.

Table 5-3 summarizes estimated maximum annual emissions of HAPs . Table 5-3 was prepared similarly to Table 5-1, i.e., HAP emission factors were determined for both wood firing and wood:coal firing. In each case, the emission factor used to prepare Table 5-3 is the factor yielding the higher emission estimate.

The only sources of TAPs at the Rexburg Facility are emissions units that combust fuels. For those sources that combust natural gas, cadmium and nitrous oxide are the TAPs for which the Screening Emissions Levels of IDAPA 58.01.01.585 and 586 will first be exceeded as natural gas combustion rates increase; i.e., an emissions unit that does not

exceed the TAP screening level for either cadmium or nitrous oxide will not exceed the screening emission level for any other TAP.[1]

Appendix C presents underlying data and calculations for the emission estimates in Table 5-1. Appendix D presents information on emission factors used to estimate Hazardous Air Pollutant emissions.

These estimates, emission factors, and other data used to prepare these estimates are provided for information only and are not to be construed as requirements applicable to Rexburg Facility operations. BAF reserves the right to periodically update these emission factors based upon additional, more relevant data collected regarding emissions and operations.

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[1] The AP-42 emission factors for natural gas and fuel oil combustion do not provide speciation of the emitted chromium. If all chromium were assumed to be hexavalent chromium, Cr(VI), then Cr(VI) emissions would be more restrictive than cadmium emission. For this evaluation, Cr(VI) was assumed to be 5 percent of total chromium emission. This assumption follows guidance issued for the California AB 2588 program (State of California Air Resources Board, Technical Guidance Document to the Criteria and Guidelines Regulation for AB 2588, August, 1989, as cited in Ventura County Air Pollution Control AB 2588 Combustion Emission Factors, May 17, 2001) for combustion of liquid fuels. Lacking other information, this factor was applied to both gaseous and liquid fuel combustion.

TABLE 5-1
POTENTIAL EMISSIONS FROM POINT SOURCES

Production Process	Stack Identification	Estimated Annual Emissions, tons										
		CO	NOX	SO2	PM	PM-10	VOC	Pb	Cd	N_2O	Be	Hg
Boilers	Kipper Boiler	243.6	119.9	214.2	72.6	71.2	12.9	1.89E-02	1.62E-03	5.1	6.00E+01	6.00E+01
Boilers	Boiler 1	18.8	22.3	0.5	1.7	1.7	1.2	1.12E-04	4.72E-06	0.0	5.20E+01	5.20E+01
Boilers	Boiler 2	12.6	15.0	0.4	1.1	1.1	0.8	7.51E-05	1.65E-04	0.3	3.50E+01	3.50E+01
Process A	7020	-	-	-	3.1	1.8	-	-	-	-	-	-
Process A	7101	7.4	1.4	0.5	12.5	9.5	0.2	1.40E-05	3.07E-05	0.1	6.50E+00	6.50E+00
Process A	7102	7.4	1.4	0.5	12.5	9.5	0.2	1.40E-05	3.07E-05	0.1	6.50E+00	6.50E+00
Process A	7019	7.5	1.4	1.0	20.7	14.8	0.2	1.42E-05	3.12E-05	0.1	6.60E+00	6.60E+00
Process A	7001	-	-	0.1	1.2	1.0	-	-	-	-	-	-
Process A	7027	-	-	-	0.3	0.2	-	-	-	-	-	-
Process A	7006	-	-	-	0.9	0.5	-	-	-	-	-	-
Process B	5034	-	-	-	0.2	0.1	-	-	-	-	-	-

TABLE 5-1
POTENTIAL EMISSIONS FROM POINT SOURCES

Production Process	Stack Identification	Estimated Annual Emissions, tons										
		CO	NOX	SO2	PM	PM-10	VOC	Pb	Cd	N_2O	Be	Hg
Process B	5037	-	-	8.2	7.5	5.7	-	-	-	-	-	-
Process B	4000	-	-	1.1	8.8	7.5	-	-	-	-	-	-
Process B	228	5.5	1.1	0.8	5.6	4.8	0.2	2.07E-05	4.56E-05	0.1	9.66E+00	9.66E+00
Process B	234	3.7	0.7	0.3	1.6	1.4	0.2	1.38E-05	3.04E-05	0.1	6.44E+00	6.44E+00
Process B	311	-	-	0.2	1.5	1.3	-	-	-	-	-	-
Process B	312	-	-	0.2	1.5	1.3	-	-	-	-	-	-
Process B	410/411	-	-	.4	3.0	2.6	-	-	-	-	-	-
Process B	613/614	-	-	0.7	5.6	4.8	-	-	-	-	-	-
Process B	615/616	-	-	0.6	4.4	3.7	-	-	-	-	-	-
Process B	638	-	-	0.2	1.2	1.1	-	-	-	-	-	-
Process B	707	-	-	-	0.0	-	-	-	-	-	-	-
Process B	725	-	-	-	0.2	0.2	-	-	-	-	-	-

TABLE 5-1
POTENTIAL EMISSIONS FROM POINT SOURCES

Production Process	Stack Identification	Estimated Annual Emissions, tons										
		CO	NOX	SO2	PM	PM-10	VOC	Pb	Cd	N_2O	Be	Hg
Process B	8	-	-	-	0.2	0.2	-	-	-	-	-	-
Process B	5001	-	-	-	2.1	1.1	-	-	-	-	-	-
Process B	5000	-	-	-	0.2	0.21	-	-	-	-	-	-
Process B	432	-	-	-	0.2	0.2	-	-	-	-	-	-
Process B	322	-	-	-	2.1	1.1	-	-	-	-	-	-
Process B	572	-	-	-	3.3	0.8	-	-	-	-	-	-
Total - Point Sources		**306.5**	**163.5**	**229.8**	**176.2**	**149.3**	**15.8**	**1.92E-02**	**1.95E-03**	**5.80**	**1.83E+02**	**1.83E+02**

TABLE 5-2
AIR EMISSIONS INVENTORY FOR FUGITIVE SOURCES

Production Process	Stack Identification	Estimated Annual Emissions, tons										
		CO	NOX	SO2	PM	PM-10	VOC	Pb	Cd	N_2O	Be	Hg
Plant	Woodpile	-	-	-	39.9	10.0	14.9	-	-	0.00E+00	-	-
Plant	Heaters	35.1	3.4	0.3	0.0	0.0	0.7	6.61E-05	1.45E-04	2.91E-01	3.08E+01	3.08E+01
Plant	Facility Roads	-	-	-	74.5	15.0	-	-	-	0.00E+00	-	-
Total – Fugitive Sources		35.1	3.4	0.3	114.4	25.0	15.7	0.00	1.45E-04	2.91E-01	3.08E+01	3.08E+01

TABLE 5-3
POTENTIAL HAZARDOUS AIR POLLUTANT EMISSIONS

Type of Fuel Combusted	Natural Gas	Wood	Coal	Total
Maximum Firing Rate, MMBTU/hr	153.5	45	45	
Hours per year	8760	8760	8760	
Maximum Firing, MMBTU/yr	1,344,660	394,200	394,200	
Potential HAP Emissions, ton/yr	1.24	4.24	2.93	8.41
Potential Hydrogen Chloride Emissions, ton/yr*	-	0.37	1.24	1.62

*Assumes 90% hydrogen chloride removal in wet scrubber.

6. RESULTS OF AIR QUALITY MODELING

This section summarizes results of air quality dispersion modeling conducted to estimate the impact of air emissions from the Rexburg Facility. The modeling included a Full Impact Analysis of Rexburg Facility emissions for compliance with National Ambient Air Quality Standards for criteria air pollutants emitted at the Rexburg Facility. Significant Impact Analyses were also performed for Toxic Air Pollutant (TAP) emissions from specific stacks to document that the impacts of TAP emissions from those stacks do not exceed Acceptable Ambient Concentrations.

FULL IMPACT ANALYSIS

The Full Impact Analysis was conducted in accordance with a modeling protocol submitted January 5, 2004 and approved by IDEQ, April 5, 2004. Appendix E contains copies of the protocol and IDEQ's approval. The complete full impact analysis is being submitted under separate cover.

Modeling was conducted for the Full Impact Analysis using ISC-Prime with BPIP-Prime to evaluate building cavity and downwash effects. The modeling was conducted using BEEST for Windows, Release 9.21, as a modeling manager[2]. The modeling was based on five years of meteorologic data from 1987 through 1991, using Pocatello data for surface meteorology and Boise data for mixing heights.

The modeling used stack physical and operating parameters as presented in the Emissions Unit data tables in Appendix B and emissions inventory data as presented in Section 5 and Appendix C. Per the modeling protocol, fugitive emissions from Rexburg Facility roads were not included in the Full Impact Analysis.

The model assessed air quality impacts at each receptor location in a grid of receptors extending 1000 meters in all directions from the Rexburg Facility fenceline. Contouring of results established that this distance encompassed all areas of significant predicted impact.

In conducting the modeling analysis, the following changes in were made in current stack conditions:

1. Stacks 228, 234, 311, 312, 410/411, 613/614, and 615/616 were modeled discharging vertically without impedance. This differs from current conditions in which stacks 228 and 234 discharge horizontally, and stacks 311, 312, 410/411, 613/614, and 615/616 have hats that arrest the upward momentum of the stack exhaust.

2. The height of stacks 7019 and 4000 were both increased by 10 feet.

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[2] BEE-Line Software, P.O. Box 7348, Asheville, NC 28802 (USA). www.beeline-software.com

These changes were made to enable the Rexburg Facility to demonstrate compliance with National Ambient Air Quality Standards for PM-10.

Table 6-1 summarizes results from the Full Impact Analysis. As Table 6-1 shows, with the changes mentioned above, emissions from the plant do not cause National Ambient Air Quality Standards to be exceeded at any of the modeled receptor locations.

SIGNIFICANT IMPACT ANALYSIS

A Significant Impact Analysis was conducted for nitrous oxide and cadmium emissions from specific sources. The only difference in modeling procedures between the Significant Impact Analysis and the Full Impact Analysis is that the Significant Impact Analysis only evaluated emissions from specific sources. In all other respects – model setup and selection, meteorological data set, receptor network, use of building downwash algorithms – the Full Impact Analysis and Significant Impact Analysis were identical.

Table 6-2 presents results of modeling impacts of Toxic Air Pollutant emissions from specific sources. These results are used in Section 7 to document that emissions from process changes subject to PTC rules do not exceed TAP Acceptable Ambient Concentrations.

TABLE 6-1
RESULTS OF FULL IMPACT ANALYSIS

Constituent and Averaging Time	Ambient Air Quality Standard, µg/m^3	Background Concentration, µg/m^3	Results of Full Impact Analysis		
			Predicted Impact, µg/m^3	Predicted Ambient Concentration, µg /m^3	Meets Ambient Air Quality Standard?
PM-10, 24-hr	150	73	76	149	Yes
PM-10, Annual	50	26	22	48	Yes
SO2, Annual	80	8	25	33	Yes
SO2, 24-hr	365	26	134	160	Yes
SO2, 3-hr	1,300	34	519	553	Yes
NOx, Annual	100	17	18	35	Yes
CO, 8-hr	10,000	2300	347	2647	Yes
CO, 1-hr	40,000	3600	894	4494	Yes
Lead, Quarter	2	0.03	0.0028	0.0328	Yes

TABLE 6-2
RESULTS OF SIGNIFICANT IMPACT ANALYSIS FOR TOXIC AIR POLLUTANTS

Stack Identification	Nitrous Oxide (AAC = 4500 μg/m^3)		Cadmium (AAC = 0.00056 μg/m^3)	
	24-hour Average Concentration, μg/m^3, Highest High	Per cent of AAC	Annual Average Concentration, μg/m^3, Highest High	Per cent of AAC
7019	0.03538	0.0008	0.00000	0
228	0.0694	0.0015	0.00001	2
234	0.0532	0.0012	0.00001	2
Heaters	0.65	0.015	0.00003	5